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THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)

Schmid, et al.

Examiner:

Unassigned

Serial No.:

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Group Art Unit:

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Confirmation No:

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Docket:

294-160

Filed:

Herewith

Dated:

July 23, 2003

For:

Selective Functionalization of Hydrocarbons with Isolated Oxygenases and Mediator

Based Regeneration

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

I hereby certify this correspondence is being deposited with the United States Postal Service as first class mail,

postpaid in an envelope, addressed to: Commissioner for Patents, P.O. Box 1450,

Alexandria, Virginia 22313-1450

on July 23, 2003

Signed:____

INFORMATION DISCLOSURE STATEMENT

Sir:

In order to fulfill the requirements of candor and good faith set forth in 37 C.F.R.

§1.56, Applicants submit herewith the following Information Disclosure Statement in accordance with the provisions of 37 C.F.R. §1.97 and §1.98.

UNITED STATES PATENTS

PATENTEE

PATENT NO.

ISSUE DATE

Higgins et al.

4,318,784

Mar. 9, 1982

FOREIGN PATENT DOCUMENTS

COUNTRY	PUBLICATION NO.	PUBLICATION DATE
PCT	WO 02/36794 A1	10 May 2002
PCT	WO 01/88172 A1	22 November 2001
PCT	WO 01/36654 A1	25 May 2001

NON-PATENT PUBLICATIONS

- 1. F. Hollmann, B. Witholt, A Schmid; "[Cp*Rh(bpy)(H₂O)]²⁺: a versatile tool for efficient and non-enzymatic regeneration of nicotinamide and flavin coenzymes;" *Journal of Molecular Catalysis B: Enzymatic*; 19-20, 167-176 (2003).
- 2. Gerhard Hilt, Tafeeda Jarbawi, William R. Heineman, and Eberhard Steckhan; "An Analytical Study of the Redox Behavior of 1,10-Phenanthroline-5,6-dione, Its Transition-Metal Complexes, and Its *N*-Monomethylated Derivative with Regard to Their Efficiency as Mediators NAD(P)+ Regeneration;" *Chem. Eur. J.*; 3(1):79-88 (1997).
- 3. J. Bryan Jones and Keith E. Taylor; "Nicotinamide coenzyme regeneration. The rates of some 1,4-dihydropyridine, pyridinium salt, and flavin mononucleotide hydrogen-transfer reactions.;" *Can. J. Chem.*; 54:2974-2980 (1976).
- 4. Dale G. Druekhammer, V.W. Riddle, and Chi-Huey Wong; "FMN Reductase Catalyzed Regeneration of NAD(P) for Use in Enzymatic Synthesis;" *American Chemical Society*; 50:5387-5389 (1985).

- 5. Gerhard Hilt, Burhanshah Lewall, Guillermo Montero, James H. P. Utley, and Eberhard Stechan; "Efficient In-Situ Redox Catalytic NAD(P)⁺ Regeneration in Enzymatic Synthesis Using Transition-Metal Complexes of 1,10-Phenanthroline-5,6-dione and Its *N*-Monomethylated Derivative as Catalysts;" *Liebigs Ann./Recueil*; 2289-2296 (1997).
- 6. Eberhard Steckhan, Thomas Arns, William R. Heineman, Gerhard Hilt, Dirk Hoormann, Jakob Jorissen, Lars Kroner, Burhanshah Lewall and Hermann Putter; "Environmental protection and economization of resources by electroorganic and electroenzymatic syntheses;" *Chemosphere* 43:63-73 (2001).
- 7. E. Steckhan, M. Freda, S. Herrmann, R. Ruppert, E. Spika, E. Dietz; "Enzymatische Synthesen durch Indirekte Elektrochemische Prozesse;" *Dechema-Monographion Band 125 VCH Verlagsgeselischaft*; 723-752 (1992) (Summary in English; Article in German).
- 8. J. Bryan Jones and Keith E. Taylor; "Nicotinamide coenzyme regeneration. Flavin mononucleotide (riboflavin phosphate) as an efficient, economical, and enzyme-compatible recycling agent;" *Canadian Journal of Chemistry*; 54(19):2969-2973 (1976).
- 9. Sabine Flitsch, Gideon Grogan and D. Ashcroft; XP-002224911, "Chapter 16 Oxidation Reactions;" p 1065-1280 (2002).

Copies of the references set forth above are enclosed herewith. A separate listing of the references has been set forth on the attached Form PTO-1449. The Examiner is respectfully requested to consider these references in their entireties, and to indicate that he or she has done so by initialing the enclosed PTO-1449.

In view of the present submission, it is believed that the present application is in all respects complete, and in condition for examination and favorable consideration.

If the Examiner has any questions or comments relating to the present invention, he or she is respectfully invited to contact Applicants' attorney at the telephone number set forth below.

Respectfully submitted,

Susan A. Sipos

Registration No: 43,128 Attorney for Applicant(s)

HOFFMANN & BARON, LLP 6900 Jericho Turnpike Syosset, New York 11791 (516) 822-3550 SAS/mf

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FORM PTO-1449 U.S. (Rev. 2-32) PATENT INFORM STATE

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Use several sheets if necessary)

ATTY. DOCKET NO.	SERIAL NO.
294-160	Unassigned
APPLICANT	CONFIRMATION NO.
Schmid, et al.	Unassigned
FILING DATE	GROUP
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U.S. PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE	
		4,318,784	03/09/82	Higgins et al.				

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION		
	NUMBER	DATE				YES	NO	
	WO 02/36794	A1 05/10/02	PCT					
	WO 01/88172	A1 11/22/01	PCT					
	WO 01/36654	A1 05/25/01	PCT					

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

F. Hollmann, B. Witholt, A Schmid; "[Cp*Rh(bpy)(H ₂ O)] ²⁺ : a versatile tool for efficient and non-enzymatic regeneration of nicotinamide and flavin coenzymes;" <i>Journal of Molecular Catalysis B: Enzymatic</i> ; 19-20, 167-176 (2003).
Gerhard Hilt, Tafeeda Jarbawi, William R. Heineman, and Eberhard Steckhan; "An Analytical Study of the Redox Behavior of 1,10-Phenanthroline-5,6-dione, Its Transition-Metal Complexes, and Its N-Monomethylated Derivative with Regard to Their Efficiency as Mediators NAD(P)+ Regeneration;" Chem. Eur. J.; 3(1):79-88 (1997).
J. Bryan Jones and Keith E. Taylor; "Nicotinamide coenzyme regeneration. The rates of some 1,4-dihydropyridine, pyridinium salt, and flavin mononucleotide hydrogen-transfer reactions.;" Can. J. Chem.; 54:2974-2980 (1976).

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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE ATTY, DOCKET NO. SERIAL NO. PATENT AND TRADEMARK OFFICE 294-160 Unassigned (Rev. 2-32) INFORMATION DISCLOSURE **APPLICANT** CONFIRMATION NO. STATEMENT BY APPLICANT Schmid, et al. Unassigned JUL 2 5 2003 FILING DATE **GROUP** Use several sheets if necessary) Herewith Unassigned U.S. PATENT DOCUMENTS DOCUMENT **SUB EXAMINER** DATE NAME CLASS FILING DATE INITIAL **NUMBER** CLASS IF APPROPRIATE FOREIGN PATENT DOCUMENTS **EXAMINER DOCUMENT SUB TRANSLATION** DATE **COUNTRY** CLASS NUMBER CLASS INITIAL YES NO OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) E. Steckhan, M. Freda, S. Herrmann, R. Ruppert, E. Spika, E. Dietz; 'Enzymatische Synthesen durch Indirekte Elektrochemische Prozesse;" Dechema-Monographion Band 125 - VCH Verlagsgeselischaft; 723-752, (1992) (Summary in English; Article in German). J. Bryan Jones and Keith E. Taylor; "Nicotinamide coenzyme regeneration. Flavin mononucleotide (riboflavin phosphate) as an efficient, economical, and enzyme-compatible recycling agent;" Canadian Journal of Chemistry; 54(19):2969-2973 (1976).

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DATE CONSIDERED

Sabine Flitsch, Gideon Grogan and D. Ashcroft; XP-002224911, "Chapter 16

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Oxidation Reactions;" p 1065-1280 (2002).